

C Mako Application Server

Mitsubishi Electric solution for web applications

Integration of web services into the control level of your plants



Easy setup of dynamic web applications



Flexible access to worldwide production facilities



Direct data base connection



More security with Secure Socket Layer (SSL)

Flexible access to your plants



Cloud communications



Mitsubishi Electric C Controller

Previously dumb remote devices are becoming increasingly intelligent. Feedback from these devices plays a vital role in optimising production environments to boost productivity, reduce waste, integrate with the wider supply chain, optimise logistics, reduce energy usage and more.

This evolution of intelligence has advanced even to the product being manufactured. Products can now communicate their status as they move through production.

All of these intelligent devices, linked as an "Internet of Things" perhaps with communications to the Cloud, constantly deliver information and wait for updates. Managing these information and communication requirements effectively and efficiently implies a new level of interaction above and beyond the simple, static web applications typical of today's industrial automation environment. This dynamic exchange only happens with technology more akin to sophisticated PC-style application servers commonly found in the higher levels of the enterprise.

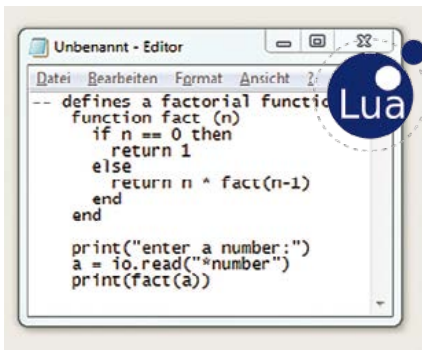
To bring this functionality onto the plant floor though, it must first be industrially rugged. Further, it must have a small enough footprint to run on standard industrial controllers. In addition, it must be absolutely secure. And finally, it must be simple to program, manage and use.

Addressing these requirements, Mitsubishi Electric has worked with e-F@ctory Partner Real Time Logic to integrate its Mako Server, a compact web server ideal for rapid design of server-side web applications, into the Mitsubishi Electric C Controller on the iQ Platform.

Web application server

Much more than a simple static web server, the Mako Server bundles all of the components and tools needed to easily and efficiently build fast, graphically rich and dynamic web applications for embedded devices. All the required functionality is built in, so there is no need for the traditional enterprise plug-in based application server framework, which requires massive amounts of resources.

Providing everything that is required to produce sophisticated web applications in a single, complete package, Mako server promises to save time, cost and effort. Applications are developed using Lua scripting language which is very easy to learn. Embedding Mako server into the C Controller means all communications to and from the PLC and the connected equipment are pre-configured, so there is no need to write any communications protocols.



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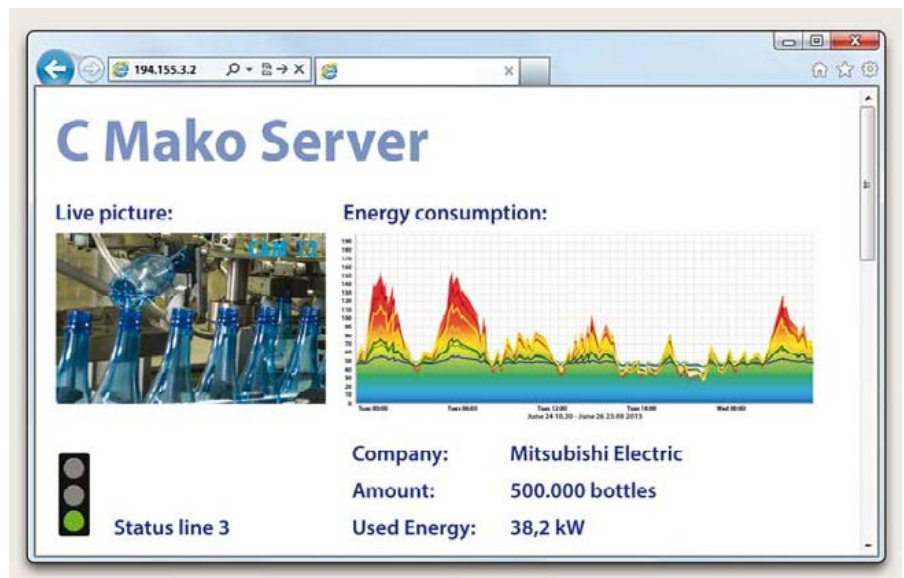
Unbenannt - Editor
Datei Bearbeiten Format Ansicht ?
-- defines a factorial function
function fact (n)
  if n == 0 then
    return 1
  else
    return n * fact(n-1)
  end
end

print("enter a number:")
a = io.read("*number")
print(fact(a))
  
```

Lua can easily be edited using any editor

Functions included as standard include:

- Event handler – Asynchronous bi-direction HTTP(S) protocol
- Lua Server Pages, including Lua virtual machine
- SSL/TLS client/server including SSL certificate
- Raima database, SQLite database and Lua SQL bindings
- Web services – JSON-RPC, XML-RPC and SOAP
- HTTP(S) client libraries
- Client and server (secure) TCP socket API
- Mail (SMTP) client



Mako Server power consumption application

Security considerations

Embedded device security is vital for the systems that underpin industrial networks and critical applications. Remote management and device maintenance cannot result in any security risk to the constant communications between sensors or device nodes, controllers and back-end systems.

Mako Server secures all communications, authenticating the user associated with a session automatically when the user logs on. Not only is this much more secure than the basic user name and password authentication, but it also ensures that non-browser clients such as some HTTP client libraries are authenticated – something not possible with traditional authentication.

Mako Server also includes the WebDAV plug-in for secure file sharing, providing a simple and secure means of updating the web server on the C Controller, effectively connecting the C Controller to a PC as a conventional extended network drive.

Managing intelligent systems

With the Real Time Logic Mako Server embedded in the Mitsubishi Electric C Controller, users can quickly and efficiently develop the sophisticated embedded web applications needed to master Industry 4.0, cloud connections, Internet of Things applications and more.

Mako Server brings enterprise-level web functionality and security to plant floor automation systems, enabling users to manage communications to and from ever-more intelligent devices through dynamic, user-friendly interfaces.

Typical application setup



Benefits include:

- Fast and easy development of web solutions
- Faster time to market with actual, reliable information from production
- Easy integration of TCP/IP based protocols like Weihenstephaner, etc.
- Up to date design that's user friendly with an app-like look and feel

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